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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,867	09/22/2005	Noriaki Masuda	JCLA17676	3422

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EXAMINER	
ARNADE, ELIZABETH	
ART UNIT	PAPER NUMBER
1791	

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10/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,867	MASUDA ET AL.	
	Examiner	Art Unit	
	ELIZABETH ARNADE	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-6,8,10 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-6,8,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/22/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is a final Office action in response to applicant's arguments filed on 6/02/2009, the response to a non-final Office action on 2/05/2009. Claims 1, 2, 4-6, 8, 10 and 11 are currently pending, claims 3, 7 and 9 having been cancelled.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 2, 4-6, 8, 10 and 11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1, 2, 4, 5 and 10 rejected under 35 U.S.C. 103(a) as obvious over JP10-101371, Ezoe et al. ('Ezoe' hereinafter) in view of US 2005/0160637, Hesse.

In regards to claim 1 and 4, Ezoe teaches a luminescent glass article, manufactured by sintering a mixture of particles of a glass and a luminescent substance, i.e. light accumulating phosphor, comprising a structure in which the luminescent substance is dispersed uniformly in the glass (Abstract).

Ezoe et al. does not expressly disclose wherein the content of the luminescent substance in the luminescent glass article is 0.5 to 2.9 mass %, the luminescent

substance having an average particle size of 75 to 5,000 micrometers; light transmittance is 20 to 90% at a thickness of 10mm; and an initial luminescence intensity just after irradiation of light of 1,000 lux for 20 minutes is 200 to 4,000 mcd/m^2.

Hesse discloses a closely related invention of a luminescent glass article comprising glass and a luminescent substance, i.e. light accumulating phosphor, wherein the particle size of the luminescent substance is preferably 10 to 70 micrometers but may vary depending on a desired effect (paragraph [0005]). Hesse further discloses that particle size is a result effect variable wherein the larger the particle size, the higher the intensity of luminescence (paragraph [0005]).

Ezoe discloses wherein the content of the luminescent substance in the luminescent glass article is 3-50 mass % (Abstract), the luminescent substance having an average particle size of 5 to 20 micrometers (paragraph [0025]). Ezoe discloses a higher mass % of luminescent substance and a smaller particle size than the instant claim.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hesse with Ezoe to modify the luminescent glass article of Ezoe such that the content of the luminescent substance in the luminescent glass article is 0.5 to 2.9 mass % and the luminescent substance has an average particle size of 75 micrometers. In other words based on a known result effect variable, one may optimize around the prior art ranges of Ezoe to decrease the content of luminescent substance by 0.1% to 2.5% (i.e. 3% reduced to 0.5 to 2.9%) and increase the particle size to 75 micrometers in the article such that an equivalent range in desired

intensity of luminescence is achieved. The motivation is the rationale that one would optimize the content of luminescent substance in the article for cost efficiency while still maintaining for a desired luminescent effect.

In regards to the remainder of claim 1, stating that the luminescent glass article's light transmittance is 20 to 90% at a thickness of 10 mm with initial luminescence intensity just after irradiation of light of 1,000 lux for 20 min of 200 to 4,000 mcd/m2 would have been inherent properties of the modified luminescent glass article of Ezoe in view of Hesse.

Similarly in regards to claim 2, stating that the luminescent glass article is characterized in that the luminescence intensity 10 min after the irradiation is 10% or more of the initial luminescence states a property of the glass article. Since the modified luminescent glass article of Ezoe in view of Hesse comprises a luminescent substance in the glass at the particle size and content as claimed, it would be inherent that the article would have the luminescence intensity as claimed.

In regards to claims 5 and 10, Ezoe and Hesse combine to teach the luminescent glass article of claim 1 and 4.

Ezoe and Hesse are silent as to the softening point temperature of the luminescent glass article.

It would be inherent that the glass article of claim 1 and 4 would have a softening point as this is a physical property inherent of glass.

It would be obvious to one of ordinary skill in that art at the time the invention was made to make the glass article of borosilicate-based glass as disclosed by Ezoe

(Abstract) with a softening point of 650 to 1,100 degrees Celsius since it was widely known at the time of the invention that borosilicate-based glass may be made with a composition resulting in a softening point of 650 to 1,100 degrees Celsius.

In regards to claims 6 and 11, Ezoe discloses that the luminescent glass article is composed of borosilicate glass (Abstract).

5. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Ezoe in view of Hesse as applied to claim 4 and further in view of US Patent 4,405,881, Kobayashi.

Ezoe and Hesse combine to teach the luminescent glass article of claim 4 as detailed above.

Neither Ezoe nor Hesse expressly disclose that the luminescent glass article is formed into a block or plate having a thickness of 5-10 mm.

Kobayashi discloses a closely related invention of a luminescent glass article wherein the luminescent glass article is a plate with a thickness of 10mm and wherein the content of luminescent substance in the luminescent glass article is 1.0 mass % (Col. 3, lines 29-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was to include the plate thickness of Kobayashi with the luminescent glass article of Ezoe and Hesse. The rationale to combine the teachings of Kobayashi with the glass article of Ezoe and Hesse is the motivation provided by the teaching of Kobayashi in that there is an inverse relationship between the thickness of the glass article and mass percent of luminescent substance needed to balance glass melting properties,

costs, and an effect of the luminescent substance (Col.3, lines 38-46); thus, a selection of a plate of 10mm thickness may be appropriate.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6,204,211 (Ohara et al.) teaches a luminous glass ceramic comprising a luminescent substance wherein the substance is uniformly added to the glass ceramic in an amount of 0.1-30 wt% wherein the resulting article has a light transmittance of 60-90% at a thickness of 10 mm. US Patent 5,204,289 (Moh) teaches glass-based and glass-ceramic-based composites including borosilicate-based glass and aluminosilicate-based glass with softening points ranging from 625-650°C and 630-700°C respectively. US Patent 4,588,540 (Kiefer et al.) teaches a borosilicate glass with a softening temperature of 815°C.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH ARNADE whose telephone number is (571)270-7664. The examiner can normally be reached on M-F, 9-5 p.m., except alternate F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN P. GRIFFIN/
Supervisory Patent Examiner, Art Unit 1791

/E. A./
Examiner, Art Unit 1791

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